Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Previously Presented) An optical reader for scanning and decoding at least one optically encoded symbol, the optical reader comprising:

a program loading component operative to store an externally generated program in the optical reader; and

a program execution component coupled to the program loading component,

the program execution component being operative to execute the externally generated program stored in the optical reader to thereby perform a predetermined task in accordance with the externally generated program, whereby executing the externally generated program includes replacing a portion of the optical reader program.

2. (Original) The optical reader of claim 1, wherein the program loading component and the program execution component are comprised of a programmable controller.

3. (Original) The optical reader of claim 2, wherein the programmable controller comprises an ASIC.

4. (Original) The optical reader of claim 2, wherein the programmable controller comprises a microprocessor device.

5. (Original) The optical reader of claim 1, further comprising a communications interface coupled to the program loading component and an external device, the communications interface being adapted to transmit the externally generated program to the program loading component by communicating with the external device.

6.   (Original) The optical reader of claim 5, wherein the communications interface is adapted to communicate with the external device over a transmission facility that includes at least one copper transmission wire.

7.   (Original) The optical reader of claim 5, wherein the communications interface is adapted to communicate with the external device over a transmission facility that includes a wireless device.

8.   (Original) The optical reader of claim 5, wherein the communications interface is adapted to communicate with the external device over a transmission facility that includes an RF device.

9.   (Original) The optical reader of claim 5, wherein the communications interface is adapted to communicate with the external device over a transmission facility that includes an RS-232 compatible device.

10.   (Original) The optical reader of claim 5, wherein the communications interface is adapted to communicate with the external device over a transmission facility that includes a computer networking device.

11.   (Original) The optical reader of claim 10, wherein the computer networking device is an Ethernet device.

12.   (Original) The optical reader of claim 5, wherein the communications interface is adapted to communicate with the external device over a transmission facility that includes at least one optical fiber.

13.   (Original) The optical reader of claim 1, wherein the external device includes a computer.

14.   (Original) The optical reader of claim 1, wherein the external device includes a machine readable diskette.

15.   (Original) The optical reader of claim 1, wherein the external device includes a CD/ROM.

16.   (Previously Presented) An optical reader for scanning-decoding at least one optically encoded symbol, the optical reader comprising:

a communications interface adapted to communicate with an external device;

an imaging assembly for scanning the at least one optically encoded signal to thereby produce digital imaging data; and

processing means for, receiving the digital imaging data from the imaging assembly,

decoding the digital imaging data in accordance with an optical reader program stored in an optical reader memory, loading an externally generated program into the optical reader memory via the communications interface, the externally generated program corresponding to a new task, and

executing the externally generated program to thereby perform the new task,

whereby executing the externally generated program includes replacing a portion of the optical reader program.

Claim 17 (Cancelled).

18.   (Original) The optical reader of claim 16, wherein the step of executing the externally generated program includes replacing all of the optical reader program.

19.   (Previously Presented) A method for instructing an optical reader to perform task it is not programmed to perform, the method comprising:

loading an externally generated program into a memory located in the optical reader; and

executing the externally generated program to perform the task, whereby the step of executing the externally generated program includes replacing a portion of the optical reader program.

20.   (Original) The method of claim 19 wherein the externally generated program comprises a diagnostic application program.

21.   (Original) The method of claim 19, wherein the externally generated program includes a reprogramming routine for loading a second externally generated program into the optical reader.

22.   (Original) The method of claim 21, wherein the reprogramming routine further comprises:

receiving a line of code of the second externally generated program from an external programming source;

checking the correctness of the line of code; and

storing the correct line of code to an erased portion of EROM located in the optical reader.

23.   (Original) The method of claim 22, wherein the correctness of the line of code is checked by performing a checksum operation.

24.   (Original) The method of claim 22, wherein external programming source is transmitted a negative acknowledgment if the line of code is incorrect.

25.   (Original) The method of claim 24, wherein the step of receiving is repeated if the line of code is incorrect.

26.   (Original) The method of claim 22, wherein the steps of receiving, checking, and storing are repeated until the last line of the externally generated application program is stored in EROM.

27.   (Original) A set of program interfaces tangibly embodied on a computer-readable medium, the program interfaces being executable on a computer in conjunction with a computer program that controls an optical reader, the set of program interfaces comprising:

       a first interface that receives a load command, and program code from an externally generated program, the interface returning an acknowledgment indicating whether the externally generated program was successfully loaded; and

       a second interface that receives the acknowledgment, the second interface directing the computer to execute the externally generated program in response to the acknowledgment.

28.   (Original) The set of program interfaces of claim 27, wherein the load command is an externally generated command.

29.   (Original) The set of program interfaces of claim 28, wherein the externally generated command is an interrupt command.

30.   (Original) The set of program interfaces of claim 27, wherein the externally generated program is a diagnostic program for testing the optical reader.

31.   (Original) The set of program interfaces of claim 27, wherein the externally generated program is a routine for reprogramming the optical reader.

32.   (Original) The set of program interfaces of claim 31, wherein the routine further comprises a third interface that receives a computer program code for controlling the optical reader, the third interface returning at least one acknowledgment indicating whether the computer program code for controlling the optical reader was successfully loaded.

33.   (Original) The set of program interfaces of claim 32, wherein the third interface returns an error message when the routine for reprogramming the optical printer is unsuccessful.

34.   (Previously Presented) A reprogrammable optical reader system, the optical reader system having a program stored in memory, the system comprising:

a programming source having at least one software program, the at least one software program corresponding to a predetermined task;

a transmission facility coupled to the programming source for transmitting that least one software program; and

an optical reader coupled to the transmission facility, the optical reader being configured to receive and execute the at least one software program to thereby perform the predetermined task, wherein executing the at least one software program includes replacing a portion of the optical reader program.

35.   (Original) The system of claim 34, wherein the optical reader further comprises:

a communications interface connected to the transmission facility, the communications interface operative to receive the software program;

a program loading component coupled to the communications interface, the program loading component operative to store the software program in the optical reader; and

a program execution component coupled to the program loading component, the program execution component operative to execute the software program stored in optical reader.

36.   (Original) The system of claim 34, wherein the transmission facility includes a computer network.

37.   (Original) The system of claim 34, wherein the transmission facility includes a wireless system.

38.   (Original) The system of claim 34, wherein the transmission facility includes at least one metallic wire.

39.   (Original) The system of claim 34, wherein the transmission facility includes at least one optical fiber.

40.   (Previously Presented) The system of claim 34, wherein transmission facility includes a public telecommunications network.

41.   (Previously Presented) The system of claim 34, wherein the programming source includes an external computer.

42.   (Original) The system of claim 34, wherein the programming source includes a diskette.

43.   (Original) The system of claim 34, wherein the programming source includes a CD/ROM.

44.   (Previously Presented) A method for reprogramming a first optical reader to perform a task performed by a second optical reader, the first optical reader having a first parameter table stored in memory, the second optical reader being programmed to perform the task by a parameter table resident in the second optical reader, the method comprising:

        providing an optically encoded menu symbol corresponding to the second parameter table; and

scanning-decoding the optically encoded menu symbol with the first optical reader to thereby load the parameter table into the first optical reader, wherein the step of scanning-decoding includes replacing a portion of the first parameter table.

45.   (Original) The method of claim 44, wherein the step of providing further comprises:

providing a host computing system;

downloading the parameter table from the second optical reader to the host computer; and

printing the optically encoded menu symbol.

46.   (Previously Presented) A portable data collection unit configured for communication with an external local host processor spaced apart from said portable data collection unit to which said portable data collection unit transmits data, said portable data collection unit comprising:

(A) a light emitting assembly directing light outwardly from said portable data collection unit;

(B) a two-dimensional solid-state image sensor having pixels;

(C) an optical assembly focusing an image of a target area onto said two-dimensional solid-state image sensor;

(D) an analog-to-digital converter in communication with said two-dimensional solid state image sensor, said analog-to-digital converter configured to convert an analog intensity value of each of a plurality of said pixels into a digital value represented by an N-bit value, where N is an integer greater than 1;

(E) an image frame memory storing two-dimensional electronic images, said image frame memory being in communication with said analog-to-digital converter;

(F) a decoding circuit in communication with said image frame memory, said decoding circuit decoding bar code symbol representations included in said two-dimensional electronic images stored in said image frame memory;

(G) a portable housing supporting said light emitting assembly, said two-dimensional solid-state image sensor, said optical assembly, said image frame memory, and said decoding

circuit;

(H) a display, wherein said portable data collection unit is configured to display message data on said display; and

(I) a radio frequency transceiver facilitating wireless communication between said portable data collection unit and an external host processor spaced apart from said portable data collection unit,

(J) wherein said portable data collection unit is configured to be reprogrammed by any one of (i) receipt of programming data from an external local host processor spaced apart from said portable data collection unit[[;]][[,]] and (ii) receipt of programming data from an external remote off-site processor spaced apart from said portable data collection unit that is communicatively coupled to said portable data collection unit via a computer network.

47.   (Currently Amended) The portable data collection unit of claim 46, further having a plurality of parameter settings establishing operating characteristics of said portable data collection unit, wherein said portable data collection unit is configured to receive from at least one of said local host processor or said remote host processor parameter setting programming data, and wherein said portable data collection unit is configured to change at least one of said plurality of parameter settings when receiving said parameter setting programming data.

48.   (Previously Presented) The portable data collection unit of claim 46, wherein said portable data collection unit is configured to receive from at least one of said local host processor or said remote host processor programming data which when received by said portable data collection unit results in said portable data collection unit operating in accordance with one of a new main program or a modified main program.

49.   (Previously Presented) The portable data collection unit of claim 46, wherein said portable data collection unit is configured to receive from at least one of said local host processor or said remote host processor programming data which when received by said portable data collection unit changes a manner in which said portable data collection unit can

be reprogrammed.

50.   (Previously Presented) The portable data collection unit of claim 46, wherein said portable data collection unit is configured to receive from at least one of said local host processor or said remote host processor programming data provided by a bar code decoding program.

51.   (Previously Presented) The portable data collection unit of claim 46, wherein said portable data collection unit operates in a mode in which said portable data collection unit receives from said external remote off-site host processor communicatively coupled to said portable data collection unit via a computer network programming data provided by a diagnostic program.

52.   (Previously Presented) The portable data collection unit of claim 46, wherein said portable data collection unit operates in a mode in which said portable data collection unit receives from said external remote off-site host processor communicatively coupled to said portable data collection unit via a computer network programming data provided by a diagnostic program, and wherein said portable data collection unit further operates in a mode in which said portable data collection unit receives from said external local host processor parameter setting programming data specifying whether a light source of said light emitting assembly is enabled or disabled.

53.   (Previously Presented) The portable data collection unit of claim 46, wherein said light emitting assembly includes an aiming light source, and wherein said portable data collection unit is configured to disable said aiming light source on receipt of a user-initiated signal initiated by a user to disable said aiming light source.

54.   (Previously Presented) The portable data collection unit of claim 53, wherein said portable data collection unit is configured so that said portable data collection unit receives said user-initiated signal that disables said aiming light source by reading of a specially

encoded programming bar code symbol that is encoded such that, when said portable data collection unit decodes said specially encoded bar code symbol, said aiming light source is disabled.

55. (Previously Presented) The portable data collection unit of claim 46, wherein said portable data collection device is configured to operate in an operating mode in which said portable data collection unit displays on said display a message indicating a version of software presently residing in said data collection unit.

56. (Previously Presented) The portable data collection unit of claim 46, wherein said light emitting assembly includes a laser, and wherein said light emitting assembly directs laser light outwardly from said portable data collection unit.

57. (Previously Presented) The portable data collection unit of claim 56, wherein light received onto said two-dimensional solid-state image sensor includes said laser light emitted by said light emitting assembly.

58. (Previously Presented) The portable data collection unit of claim 46, wherein said portable data collection unit is configured so that a frame rate of said two-dimensional solid state image sensor is adjustable.

59. (Previously Presented) The portable data collection unit of claim 58, wherein said portable data collection unit is configured so that said frame rate of said two dimensional solid state image sensor is controlled by a user.

60. (Previously Presented) The portable data collection unit of claim 58, wherein said portable data collection unit is configured so that receipt by said portable data collection unit of a certain user-initiated signal results in said frame rate of said two-dimensional solid state image sensor changing from a first value to a second value.

61. (Previously Presented) The portable data collection unit of claim 60, wherein said portable data collection unit is configured so that said portable data collection unit receives said certain user-initiated signal that results in said frame rate changing from a first value to a second value when said portable data collection unit reads a specially encoded programming bar code symbol, said specially encoded programming bar code symbol encoded so that a frame rate of said two-dimensional solid state image sensor changes from a first value to a second value when said portable data collection unit reads said specially encoded programming bar code symbol.

62. (Previously Presented) The portable data collection unit of claim 58, wherein said certain user-initiated signal is a parameter setting specifying a frame rate of said two-dimensional solid state image sensor.

63. (Previously Presented) The portable data collection unit of claim 58, wherein portable data collection unit is configured so that said portable data collection unit receives said certain user-initiated signal resulting in said frame rate change via said radio frequency transceiver.

64. (Previously Presented) The portable data collection unit of claim 58, wherein said portable data collection unit is configured so that said portable data collection unit receives said certain user-initiated signal resulting in said frame rate change from an external host processor which is in communication with said portable data collection unit via a communication link that includes a flexible cable.

65. (Previously Presented) The portable data collection unit of claim 46, wherein said image sensor is provided on an integrated circuit chip that does not include said analog-to-digital converter.